

IN THE CLAIMS

1. (currently amended) An NROM memory transistor comprising:
 - a substrate having a plurality of source/drain regions, the source/drain regions having a different conductivity type than the remainder of the substrate;
 - a nanolaminate gate dielectric formed on top of the substrate substantially between the plurality of source/drain regions, the gate dielectric composed of oxide – nitride – HfO_2 wherein the nitride layer is a homogeneous nitride layer; and
 - a control gate formed on top of the gate dielectric[.];wherein the HfO_2 of the gate dielectric is formed by evaporating Hafnium onto the nitride and then oxidizing the Hafnium.
- 2 – 34. (canceled)
35. (previously presented) The transistor of claim 1 wherein the plurality of source/drain regions are comprised of an n+ type doped silicon.
36. (previously presented) The transistor of claim 1 wherein the control gate is a polysilicon material.
37. (previously presented) The transistor of claim 1 wherein the substrate is comprised of p-type silicon.
- 38-40. (canceled)
41. (currently amended) A non-volatile memory device comprising:
 - a memory array comprising a plurality of NROM memory transistors, each transistor comprising:
 - a substrate having a pair of source/drain regions, the source/drain regions having a different conductivity type than the remainder of the substrate;

a nanolaminate gate dielectric formed over the substrate substantially between the pair of source/drain regions, the gate dielectric composed of oxide – nitride – HfO_2 wherein the nitride layer is a homogeneous nitride layer; and
a control gate formed over the gate dielectric[.];
wherein the HfO_2 of the gate dielectric is formed by evaporating Hafnium onto the nitride and then oxidizing the Hafnium.

42. (previously presented) The memory device of claim 41 wherein the pair of source drain regions are n+ doped regions in a p-type substrate.
43. (previously presented) The memory device of claim 41 wherein the substrate is silicon and the control gate is polysilicon.
44. (previously presented) An electronic system comprising:
a processor that generates control signals; and
a memory device with a memory array coupled to the processor, the array comprising a plurality of NROM memory cells, each NROM memory cell comprising:
a substrate having a plurality of source/drain regions, the source/drain regions having a different conductivity than the remainder of the substrate;
a nanolaminate gate dielectric formed over the substrate substantially between each pair of the plurality of source/drain regions, the gate dielectric composed of oxide – nitride – HfO_2 wherein the nitride layer is a homogeneous nitride layer; and
a control gate formed over the gate dielectric[.];
wherein the HfO_2 of the gate dielectric is formed by evaporating Hafnium onto the nitride and then oxidizing the Hafnium.